

Please substitute the following claim 14 for currently pending claim 14:

14. (Twice amended) A method for cloning or subcloning one or more desired nucleic acid molecules comprising
- (a) forming a mixture by combining *in vitro*
- (i) one or more first nucleic acid molecules comprising one or more desired nucleic acid segments flanked by at least two recombination sites, wherein said recombination sites do not recombine with each other;
- (ii) one or more second nucleic acid molecules each comprising at least two recombination sites, wherein said recombination sites do not recombine with each other;
- (iii) at least one recombination protein; and
- (iv) at least one purified ribosomal protein; and
- (b) incubating said mixture under conditions sufficient to transfer one or more of said desired segments into one or more of said second nucleic acid molecules, thereby producing one or more desired third nucleic acid molecules.

Please substitute the following claim 15 for currently pending claim 15:

15. (Twice amended) The method of claim 14, further comprising:
- (c) forming a mixture by combining *in vitro*

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- (i) one or more of said third molecules comprising said desired segments flanked by two or more recombination sites, wherein said recombination sites do not recombine with each other;
 - (ii) one or more different fourth nucleic acid molecules each comprising two or more recombination sites, wherein said recombination sites do not recombine with each other;
 - (iii) at least one recombination protein; and
 - (iv) at least one purified ribosomal protein; and
 - (d) incubating said mixture under conditions sufficient to transfer one or more of said desired segments into one or more different fourth nucleic acid molecules, thereby producing one or more different fifth nucleic acid molecules.

Please substitute the following claim 18 for currently pending claim 18:

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18. (Once amended) The method of claim 14, further comprising incubating said different third nucleic acid molecules with one or more different fourth nucleic acid molecules under conditions sufficient to transfer one or more of said desired segments into said different fourth nucleic acid molecules.

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Please substitute the following claim 19 for currently pending claim 19:

19. (Twice amended) A method for cloning or subcloning desired nucleic acid molecules comprising:

- (a) forming a mixture by combining *in vitro*

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- (i) one or more first nucleic acid molecules comprising one or more nucleic acid segments flanked by two or more recombination sites, wherein said recombination sites do not recombine with each other;
- (ii) two or more different second nucleic acid molecules each comprising two or more recombination sites, wherein said recombination sites do not recombine with each other;
- (iii) at least one recombination protein; and
- (iv) at least one purified ribosomal protein; and
- (b) incubating said mixture under conditions sufficient to transfer one or more of said desired segments into said different second nucleic acid molecules, thereby producing two or more different third nucleic acid molecules.

Please substitute the following claim 31 for currently pending claim 31:

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31 (Twice amended) A method for recombinational cloning of one or more desired nucleic acid molecules comprising:

- (a) forming a mixture by mixing *in vitro* one or more of said desired nucleic acid molecules with one or more vectors and with at least one purified ribosomal protein and an effective amount of at least one recombination protein; and
- (b) incubating said mixture under conditions sufficient to transfer said one or more desired nucleic acid molecules into one or more of said vectors.

Please substitute the following claim 40 for currently pending claim 40:

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40. (Twice amended) A method for enhancement of recombinational cloning, comprising contacting at least two nucleic acid molecules each comprising at least one recombination site *in vitro* with one or more purified ribosomal proteins and with one or more recombination proteins to form a mixture, and incubating said mixture under conditions favoring the production of at least one product nucleic acid molecule.

(c) Please enter the following new claims 89-104:

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89. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said at least one recombination protein is at least one isolated Int protein and at least one isolated IHF protein.

90. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said at least one recombination protein is at least one isolated Int protein, at least one isolated IHF protein and at least one isolated Xis protein.

91. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture further comprises at least one isolated FIS protein.

92. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture further comprises spermidine.

93. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture further comprises Tris-HCl.

94. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture further comprises ethylenediamine tetracetic acid (EDTA).

BB 95. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture further comprises bovine serum albumin (BSA).

96. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture further comprises at least one additional isolated recombination protein selected from the group consisting of a Cre protein, an FLP protein, a $\gamma\delta$ protein, a Tn3 resolvase protein, a Hin protein, a Gin protein, and a Cin protein.

97. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said recombination protein is at least one isolated Cre protein.

98. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture comprises at least one isolated Int protein, at least one isolated IHF protein, spermidine, Tris-HCl, EDTA and BSA.

99. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture comprises at least one isolated Int protein, at least one isolated IHF protein, at least one isolated Xis protein, spermidine, Tris-HCl, EDTA and BSA.

100. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture comprises at least one isolated Int protein, at least one isolated IHF protein and spermidine.

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cancel

101. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said mixture comprises at least one isolated Int protein, at least one isolated IHF protein, at least one isolated Xis protein and spermidine.

102. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said first or second nucleic acid molecule is an Insert Donor nucleic acid molecule.

103. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said first or second nucleic acid molecule is a Vector Donor nucleic acid molecule.

104. (New) The method of any one of claims 14, 15, 19, 31 and 40, wherein said fourth nucleic acid molecule is a Vector Donor nucleic acid molecule.

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